

U.S. Patent Application Serial No. 10/537,250
Amendment filed February 21, 2007
Reply to OA dated December 12, 2006

REMARKS

Claims 1-5 are pending in the application. Claims 1 and 3-5 stand rejected. Claim 2 is objected to. Claim 1 has been amended in this response.

Claim Rejections under 35 USC §102(b)

Claims 1 and 3-5 stand rejected under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,556,072 (Itoi et al.).

The present invention is a controller having a valve body (1), a casing (2) fixed to the upper portion of the valve body (1), an operating rod (3) disposed in an upper inside portion of the casing (2) and movable upward and downward, a drive device (4) for moving the operating rod (3) upward and downward, and a force amplifying device (5) provided in a lower inside portion of the casing (2) for transmitting a force acting on the operating rod (3) to a valve stem (16). The force amplifying device (5) further includes a tapered member (41) extending vertically downward from the lower end of an operating rod (3), a disk member (42) provided at the upper end of a valve stem (16), and front and rear pivotal members (43 and 44) arranged between the two members (41 and 42) and opposed to each other with the tapered member (41) positioned therebetween. The pivotal members (43 and 44) are pivotally movable about respective pivots (45 and 46). Each of the pivotal members (43 and 44) has a plate body (43a and 44a), an upper contact face (43b and 44b) formed on an upper portion of the body and in contact with a tapered face of the tapered member (41), and a lower contact face (43c and 44c) formed on a lower portion of the body and bearing on the upper surface of the disk

member (42). The lower contact face (43c and 44c) of each pivotal member is in the form of a circular-arc cam face centered about a center line positioned away from the axis of the pivot (45 and 46).

Itoi et al. describes a controller. At the outset it should be noted that significant similarities exist between figure 1 of the present invention and figure 1 of Itoi et al. Therefore, our analysis will be confined to those areas of Itoi et al. which we believe differ from the present invention.

One feature that differentiates the present invention from the prior art is that the force transmission device (41) of Itoi et al. employs front and rear roller support members (43) each having a pair of right and left vertical plates (44) that hold roller (46) and a push roller (45) therebetween. Each of the vertical plates (44) has a circular shaft hole (47) at its upper end portion and a noncircular shaft hole (48) at its lower end portion. In the present invention, a pair of front and rear pivotal members (43, 44) are used having front and rear pivots (45, 46). An upper contact face (43b, 44b) is formed on an upper portion of the body (43a, 44a) of the front and rear pivotal members (43, 44) is in bearing contact with the corresponding tapered face of the tapered member (41). Therefore, the design of the present invention is substantially simpler, more reliable and less costly to manufacture.

In light of this difference discussed above, claim 1 has been amended to include the limitations of originally filed claim 5. Therefore, claim 1 patentably distinguishes over the prior art by reciting,

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“A controller comprising a valve body having a fluid channel openable and closable with reciprocating upward and downward movement of a valve stem, a casing fixed to an upper portion of the valve body, an operating rod provided in an upper inside portion of the casing and movable upward and downward, drive means for moving the operating rod upward and downward, and force amplifying means provided in a lower inside portion of the casing for transmitting a force acting on the operating rod to the valve stem upon amplification, the controller being characterized in that the force amplifying means comprises a tapered member extending vertically downward from a lower end of the operating rod, a disk member provided at an upper end of the valve stem, and a first and a second pivotal member arranged between the two members and opposed to each other with the tapered member positioned therebetween, each of the first and second pivotal members being pivotally movable about an axis of a pivot extending through a lower portion thereof, each of the pivotal members having a plate body, an upper contact face formed on an upper portion of the body and in direct bearing contact with a tapered face of the tapered member, the upper contact face of each pivotal member being in the form of a circular-arc face, and a lower contact face formed on a lower portion of the body and direct bearing on an upper surface of the disk member, the lower contact face of each pivotal member being in the form of a circular-arc cam face centered about a center line positioned away from the axis of the pivot.” (Emphasis Added)

Therefore, withdrawal of the rejection of claims 1 and 3-5 under 35 U.S.C. §102(b) as being anticipated by U.S. Patent 5,556,072 (Itoi et al.) Is respectfully requested.

CONCLUSION

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested

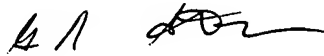
If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicants undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

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In the event that this paper is not timely filed, the applicants respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

ARMSTRONG, KRATZ, QUINTOS,
HANSON & BROOKS, LLP



George N. Stevens
Attorney for Applicant
Reg. No. 36,938

GNS/jls
Atty. Docket No. 050347
Suite 1000
1725 K Street, N.W.
Washington, D.C. 20006
(202) 659-2930



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